Chapter 15
Importance of Natural Resource Management for Livestock: Case Study from Sankhuwasabha District, Nepal

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Livestock play an important role in Nepalese agriculture. They provide valuable protein in the form of milk, meat, and other products to farm families. Ruminant animals supply 100% of milk and 94% of meat in the country. They also provide more than 90% of organic manure (Tulachan and Neupane 1999).

Livestock-raising is the second major occupation in Sankhuwasabha District. Cattle, goats, pigs, and chauri (yak/cattle cross) are the main livestock (Tiwari 1994). All communities raise cattle, goats, and pigs; sheep and chauri are raised by Sherpa and Bhote in the northern belt by those who have access to mountain pastures. Cattle are raised for draught power and manure. Every household raises pigs and chickens for social and religious purposes. Pigs, chickens, and goats are the main source of family income as these animals are easily sold in village and nearby markets.

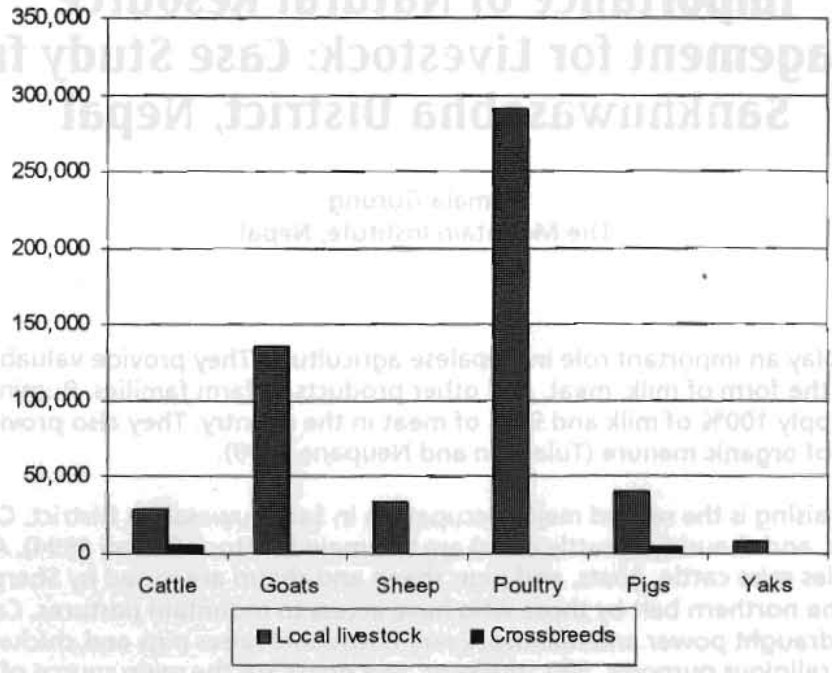
Livestock population

Figure 6 shows the numbers of livestock in Sankhuwasabha District. The average annual milk production is 2,000-2,500 l from cows and 2,400 l from buffaloes (Sankhuwasabha Livestock Service Office 2001). Crossbred buffaloes cannot survive in the northern part of the district because of the cold climate. However, upgrading with Murrah bulls has been tried in the lower belt to increase the milk production. Goats are the main livestock species in the district; they are raised mainly for meat. They are consumed by all communities and fetch the highest price in the market. The mountain goat is called Sinhal; it has long hair and is a crossbred of the hill goat (Tiwari 1994). Sheep are kept for wool and meat. The wool is coarse. Average annual wool production per animal is 1.5-2 kg in two shearings at six-month intervals. Rai, Damai, and Sherpas mostly raise pigs. Crossbred white pigs are found in some areas such as the southern belt; however, in general, black pigs are preferred for social and religious ceremonies. The District Livestock Services Office distributes improved black pigs to local farmers each year. Almost every household raises a few chickens.

Interactions between livestock and natural resources

Livestock have strong links with forest resources for fodder supply and nutrient recycling. Forests cover 39.8% of the district and pastures 10.5%. Agricultural land (8.6% of district) is mainly for food production. The size and structure of livestock populations on farms depend on the supply of crop by-products, and of fodder from forest and grazing land. Grazing is the most important animal feeding practice, contributing about 65% of total feed requirements (Tiwari 1994). Mountain grazing,

Figure 6: Total numbers of livestock in Sankhuwasabha District in 2001



Source: Sankhuwasabha Livestock Service Office (2001)

where animals are grazed on seasonal grasses of alpine, sub-alpine, and temperate pastures and forests, is usually done in spring, summer, and the rainy season. Homestead grazing is done in autumn and winter. Animals are grazed on fallow crop fields, shrublands, wastelands, and subtropical areas.

The next most important source of green fodder is tree fodder, grown by farmers on a small scale in fields and on field borders. *Ficus semicordata* (khanyu), *Ficus lacor* (kabro), *Ficus nemoralis, Ficus roxburghii, Artocarpus lakoocha* (badahar), *Bauhinia purpurea* (tanki), *Bauhinia variegata* (koiralo), and *Leucaena leucocephala* (ipil ipil) are planted by farmers on private land. *Quercus lamellosa* (bajrant), *Quercus lanata* (banjh), *Castanopsis tribuloides,* and *Litsea elongata* are lopped from forests.

Activities of The Mountain Institute related to livestock development.

The Mountain Institute is working in the buffer zone of the Makalu–Barun National Park in 10 village development committees (VDCs) of Sankhuwasabha District and two VDCs of Solukhumbu District. The people of these VDCs have few alternatives to their usual crops of wheat, millet, and potatoes. Their main source of income is from agriculture, followed by livestock-raising.

The Mountain Institute has carried out three activities that contribute to development of the livestock sector: establishment of mini-kit nurseries, provision of a revolving fund, and provision of veterinary training and equipment.

Mini-kit nurseries

The Mountain Institute has been running a mini-kit nursery programme since 1999. Under this programme, 12 mini-kit nurseries have been established. The main purpose of these nurseries is to produce quality and healthy seedlings to meet local demand. These nurseries grow local fodder species, timber/fuelwood species, non-timber forest products species, and fruit species. Seedlings are used by private planters, farmers, community forestry user groups, women's groups, and local clubs. People plant timber and fuelwood species on marginal land; this prevents soil erosion and increases forest coverage. Farmers plant fodder species rather than timber species on their own land.

At present, project nurseries grow a higher number of timber/fuelwood species than fodder species. However, farmers and local people are more interested in fodder species to plant on their marginal land.

Use of revolving fund by local communities

The Mountain Institute has assisted in establishing local groups. It has then provided a revolving fund to 25 enterprise groups, such as women's groups, savings and credit groups, and allo groups for micro-enterprise development. These grants are provided through local NGO partners that monitor the use of funds. While monitoring these groups, it was found that farmers' groups were interested in raising small animals such as goats, pigs, and poultry to generate cash income. Farmers consider that raising these livestock was critical to improving their livelihoods. There was also a high demand for seedlings of fodder trees species for growing on private land.

Veterinary training

In The Mountain Institute project area, livestock diseases are mostly treated locally; there are no veterinary services to consult, and no veterinary doctor. Therefore, it is necessary to provide veterinary training for people so that they can perform basic treatment for infertility, delivery problems, and common diseases of livestock. They can improve animal health in inexpensive ways. The Mountain Institute has distributed some medicine and equipment including veterinary kits to trainees. The equipment and materials that are distributed during training are managed by the VDC. A memorandum of understanding is prepared and signed between The Mountain Institute, the VDC chairman, and trainees. Training seems to be effective: for example, training in *badijo castrato* means that farmers no longer castrate using vasectomy. Providing these kinds of training not only saves time and animals' health but also encourages raising of more livestock.

Gap

Groups in the project area use their loans for raising goats, pigs, and chickens, and other income-generating activities. It seems that the forest mostly meets the demand for fodder. However, there is growing pressure on the forest for fodder and bedding materials. The project needs to monitor the demand by local people for natural resource management. There is much greater demand for fodder tree species than for timber species. Therefore, more fodder tree species should be introduced in the mini-kit nurseries. Livestock in Sankhuwasabha are mostly indigenous. In general, they are smaller framed, mature later, and are less productive than improved exotic animals. However, they are well adapted to the local situation, and need little care and management.

Conclusion

This paper shows that there is a gap in the planning processes for project implementation. Income-generating farmers' and women's groups give priority to raising livestock such as goats and pigs, and raising seedlings of fodder tree species. In future, participatory approaches involving all beneficiaries should be followed in developing project implementation strategies.

References

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